

WHAT IS CLAIMED IS:

1. A game apparatus for displaying an object in a game space, the apparatus comprising:

5           a light source setting section for setting, in the game space,  $n$  light sources (where  $n$  is an integer equal to or more than 2) for irradiating the object with a light beam;

          a brightness calculating section for calculating, for each of predetermined units forming the object, a brightness vector  
10   having as components  $n$  illumination intensities respectively added by the  $n$  light sources;

          a threshold value storage section having threshold values of the  $n$  illumination intensities stored therein, the threshold values being used for dividing a coordinate region for  
15   the brightness vector into at least three regions;

          a region determining section for determining, for each of the predetermined units, a region including a tip of the brightness vector calculated by the brightness calculating section from among the regions obtained via division by the threshold values  
20   based on relationships in size between the  $n$  illumination intensities and their corresponding threshold values; and

          a display color determining section for determining a display color for each of the predetermined units based on the region determined for each of the predetermined units by the region  
25   determining section, such that the object's display color

distinctly varies.

2. The game apparatus according to claim 1, wherein:

the light source setting section sets a first light  
5 source emitting a light beam of a first color, and a second light  
source emitting a light beam of a second color which is different  
from the first color;

the brightness calculating section calculates, for each  
of the predetermined units forming the object, a brightness vector  
10 composed of the illumination intensities corresponding to values  
of color components of the first and second colors; and

the region determining section determines the region  
including the tip of the brightness vector by determining a  
relationship in size between the value of the color component of  
15 the first color and its corresponding first threshold value, and  
a relationship in size between the value of the color component  
of the second color and its corresponding second threshold value.

3. The game apparatus according to claim 2, wherein:

20 the first color is either one of red, green, or blue;  
and

the second color differs from the first color, and is  
either one of red, green, or blue.

4. The game apparatus according to claim 2, wherein:

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the coordinate region is divided into different regions by the first threshold value, and is further divided into different regions by the second threshold value; and

the display color determining section determines display colors of different brightness in accordance with the regions obtained by division by the first threshold value, and determines display colors of different types in accordance with the regions obtained by division by the second threshold value.

5. The game apparatus according to claim 4, wherein the display color determining section determines, in accordance with the regions obtained by division by the second threshold value, either a color used for representing an object influenced by a special effect generated in the game space or a color used for representing an object in the case where no special effects are generated.

6. The game apparatus according to claim 5, further comprising a special effect determining section for determining whether the special effect is generated in the game space, wherein the light source setting section provides the second light source only when the special effect determining section determines that the special effect has been generated.

7. The game apparatus according to claim 1, further

comprising a display color storage section having basic display colors stored therein, the basic display colors being used for determining the display color of each object, wherein the display color determining section determines the display color based on the region determined by the region determining section and the basic display colors stored in the display color storage section.

8. The game apparatus according to claim 7, wherein:  
the region determining section represents a determined region by a numerical value; and

the display color determining section determines the display color by performing a predetermined calculation using the numerical value representing the region determined by the region determining section and color data for the basic display colors.

9. The game apparatus according to claim 1, wherein the predetermined units are polygons forming the object.

10. A game apparatus for displaying an object in a game space, the apparatus comprising:

a first light source setting section for setting, in the game space, a first light source for irradiating the object with a light beam;

a second light source setting section for setting, in the game space, a second light source which is different from the

first light source;

a brightness calculating section for calculating, for each of predetermined units forming the object, a first illumination intensity added by the first light source and a second illumination intensity added by the second light source;

a threshold value storage section having threshold values of the first and second illumination intensities stored therein;

a first detecting section for detecting, for each of the predetermined units, a relationship in size between the first illumination intensity and its corresponding threshold value;

a second detecting section for detecting, for each of the predetermined units, a relationship in size between the second illumination intensity and its corresponding threshold value; and

a display color determining section for determining a display color for each of the predetermined units based on detection results obtained for each of the predetermined units by the first and second detecting sections, such that the object's display color distinctly varies.

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11. The game apparatus according to claim 10, wherein the predetermined units are polygons forming the object.

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12. A computer-readable recording medium having a game program recorded therein, the game program causing a game apparatus

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to implement a game in which an object is displayed in a game space,  
the game program causing the game apparatus to implement:

5 a light source setting step for setting, in the game  
space,  $n$  light sources (where  $n$  is an integer equal to or more  
than 2) for irradiating the object with a light beam;

a brightness calculating step for calculating, for each  
of predetermined units forming the object, a brightness vector  
having as components  $n$  illumination intensities respectively added  
by the  $n$  light sources;

10 a region determining step for determining, for each of  
the predetermined units, a region including a tip of the brightness  
vector calculated at the brightness calculating step from among  
at least three regions into which a coordinate region for the  
brightness vector is divided by threshold values of the  $n$   
15 illumination intensities, based on relationships in size between  
the  $n$  illumination intensities and their corresponding threshold  
values; and

a display color determining step for determining a  
display color for each of the predetermined units based on the  
20 region determined for each of the predetermined units at the region  
determining step, such that the object's display color distinctly  
varies.

13. The computer-readable recording medium according  
25 to claim 12, wherein:

the light source setting step sets a first light source emitting a light beam of a first color, and a second light source emitting a light beam of a second color which is different from the first color;

5           the brightness calculating step calculates, for each of the predetermined units forming the object, a brightness vector composed of the illumination intensities corresponding to values of color components of the first and second colors; and

10           the region determining step determines the region including the tip of the brightness vector by determining a relationship in size between the value of the color component of the first color and its corresponding first threshold value, and a relationship in size between the value of the color component of the second color and its corresponding second threshold value.

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14. The computer-readable recording medium according to claim 13, wherein:

the first color is either one of red, green, or blue; and

20           the second color differs from the first color, and is either one of red, green, or blue.

15. The computer-readable recording medium according to claim 13, wherein:

25           the coordinate region is divided into different regions

by the first threshold value, and is further divided into different regions by the second threshold value; and

the display color determining step determines display colors of different brightness in accordance with the regions  
5 obtained by division by the first threshold value, and determines display colors of different types in accordance with the regions obtained by division by the second threshold value.

16. The computer-readable recording medium according  
10 to claim 15, wherein the display color determining step determines, in accordance with the regions obtained by division by the second threshold value, either a color used for representing an object influenced by a special effect generated in the game space or a color used for representing an object in the case where no special  
15 effects are generated.

17. The computer-readable recording medium according to claim 16, wherein:

the game program further causes the game apparatus to  
20 implement a special effect determining step for determining whether the special effect is generated in the game space; and

the light source setting step provides the second light source only when the special effect determining step determines that the special effect has been generated.



18. The computer-readable recording medium according to claim 12, wherein:

the game apparatus has basic display colors stored therein, the basic display colors being used for determining the display color of each object; and

the display color determining step determines the display color based on the region determined at the region determining step and the basic display colors stored in the game apparatus.

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19. The computer-readable recording medium according to claim 18, wherein:

the region determining step represents a determined region by a numerical value; and

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the display color determining step determines the display color by performing a predetermined calculation using the numerical value representing the region determined at the region determining step and color data for the basic display colors.

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20. The computer-readable recording medium according to claim 12, wherein the predetermined units are polygons forming the object.

21. A computer-readable recording medium having a game program recorded therein, the game program causing a game apparatus

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to implement a game in which an object is displayed in a game space,  
the game program causing the game apparatus to implement:

a first light source setting step for setting, in the  
game space, a first light source for irradiating the object with  
5 a light beam;

a second light source setting step for setting, in the  
game space, a second light source which is different from the first  
light source;

a brightness calculating step for calculating, for each  
10 of predetermined units forming the object, a first illumination  
intensity added by the first light source and a second illumination  
intensity added by the second light source;

a first detecting step for detecting, for each of the  
predetermined units, a relationship in size between the first  
15 illumination intensity and its corresponding threshold value;

a second detecting step for detecting, for each of the  
predetermined units, a relationship in size between the second  
illumination intensity and its corresponding threshold value; and

a display color determining step for determining a  
20 display color for each of the predetermined units based on detection  
results obtained for each of the predetermined units by the first  
and second detecting steps, such that the object's display color  
distinctly varies.

25 22. The computer-readable recording medium according

to claim 21, wherein the predetermined units are polygons forming the object.